REMARKS

Claims 1-31 are pending in the application. Claims 1-3, 6-9, 12, 15-10, 22-25, and 28-30 were rejected. Claims 4, 5, 10, 11, 13, 14, 20, 21, 26, 27, and 31 are objected to.

Claims 1-3, 6-9, 12, 15-19, 22-25, and 28-30 were rejected pursuant to 35 U.S.C. §102(b) as being anticipated by Rhyne (U.S. Patent No. 6,010,456). Claims 1-3, 6-9, 12, 15-19, 22-25, and 28-30 were rejected pursuant to 35 U.S.C. § 103(a) as being unpatentable over Kamiyama et al. (U.S. Patent No. 5,873,829). Claims 1-3, 6-9, 12, 15-19, 22-25, and 28-30 were rejected pursuant to 35 U.S.C. § 103(a) as being unpatentable over Brock-Fisher et al. (U.S. Patent No. 5,577,505). Claims 4, 5, 10, 11, 13, 14, 20, 21, 26, 27, and 31 were objected to as being dependent upon a rejected base claim, but allowable if amended into independent form.

Applicants respectfully request reconsideration of the rejections of claims 1-3, 6-9, 12, 15-19, 22-25, and 28-30, including independent claims 1, 12, 19 and 24.

Independent claim 1 claims setting a transmit level, and automatically selecting a setting for at least one contrast agent imaging parameter as a function of the transmit level and in response to the setting of the transmit level. Rhyne, Kamiyama et al., and Brock-Fisher et al. do not disclose these limitations.

Rhyne discloses a particular type of contrast agent detection or imaging technique. Non-linear echoes are isolated using a pair of transmit firings with different characteristics (col. 2, lines 47-50 and col. 3, lines 27-38). One transmit firing is a high peak power uncoded waveform, and another is a low peak power coded waveform (col. 5, lines 27-34). The responsive echo signals are combined by subtraction to isolate the non-linear component (col. 5, lines 1-15 and col. 6, lines 48-67). A master controller directs the process for detecting non-linear signals (col. 6, lines 5-7). Rhyne uses transmit firings with different peak power settings. The settings are part of a detection technique. The parameters for the technique are part of a set of settings including the transmit power. There is no suggestion to automatically select a setting in response to setting the transmit power.

Kamiyama et al. disclose two types of imaging - a tissue tomographic image and a contrast image (col. 3, lines 46-52). Scans for each type are performed alternately (col. 4, lines 8-14, and col 6, lines 38-40 and 62-65). A different sound pressure may be used for each type of imaging (col. 4, lines 15-31, and col. 8, lines 9-14). The imaging for each type is performed

automatically (col. 4, lines 32-38; col. 4, line 66 – col. 5, line 4 and col. 9, lines 47-50). Kamiyama et al. interleave two types of imaging with different sound pressures. Firings at different pressures are interleaved as part of two different modes. The power is part of a mode or group of settings, not a value used to set other values. Kamiyama et al. do not suggest automatically selecting a setting in response to setting the of transmit power.

Brock-Fisher et al. disclose a mode for measuring non-linear response (abstract). Multiple excitations have different amplitude levels (col. 2, lines 20-24 and 40-44). The received information from the different level excitations are subtracted (col. 1, lines 54-61 and col. 2, lines 33-35). Different levels of gain are applied on receive due to the different levels of excitation (col. 2, lines 25-28). The subtracted image is shown with another image (col. 2, lines 35-39). Brock-Fisher et al. use different transmit levels to detect non-linear response. The different transmit levels are part of a mode of imaging. Brock-Fisher et al. use preset parameters including transmit levels but do not automatically set any parameter in response to setting the transmit level. Using different gain with different transmit is part of a mode of imaging. The gain is set with the transmit level, not in response to setting the transmit level.

Independent claim 12 recites automatically adjusting from one contrast agent detection technique to another contrast agent detection technique and performing the adjustment in response to a change in transmit level.

Rhyne, Kamiyama et al., and Brock-Fisher et al. each disclose one contrast agent detection technique, and thus do not adjust between two contrast agent detection techniques. Combining the contrast agent detection with a normal B-Mode or tomographic image is not adjusting from one contrast agent detection technique to another contrast agent detection technique.

As discussed above for claim 1, Rhyne, Kamiyama et al., and Brock-Fisher et al. use different transmit levels in a contrast agent imaging mode. They use different transmit levels within a sequence of pulses for a single mode thereafter combined to detect nonlinearities of contrast agents. There is no disclosure of automatically adjusting in response to a change in transmit level. Using different transmit levels and other parameters in an imaging mode is not adjusting "in response" to a change in transmit level.

Independent claim 19 recites altering a transmit level and a transmit sequence in response to a single user input control, with at least two different transmit levels being associated with at least one of the transmit sequences.

Rhyne shows a master controller 42, but does not disclose altering in response to a single user input control.

Kamiyama et al. start the processing of the non-linear imaging mode in response to a command set from an operation unit 14 (col. 10, lines 11-12). However, the command starts the single mode, not altering the transmit level and sequence in response to the command.

Brock-Fisher et al. do not disclose any user input control.

Independent claim 24 recites a processor operable to select different transmit levels and sequences in response to a single user input. Claim 24 is allowable for the same reasons as claim 19.

Dependent claims 2-11, 13-18, 20-23, and 25-31 depend on or include similar limitations as independent claims 1, 12, 19 and 24, and are thus allowable for at least the same reasons as the corresponding base claim. The dependent claims are patentable over Rhyne, Kamiyama et al., and Brock-Fisher et al. for additional reasons. Claim 2 recites setting transmit level by a user with a single control, and is thus allowable for at least the same reasons as claims 19 and 24. Claim 3 recites setting the transmit level automatically by a processor in response to a measurement. The cited references use different levels to make a measurement, but do not use a measurement to set the transmit level. Claim 8 recites providing two or more transmit level settings available as a set of user-accessible options for setting the transmit level where each setting incorporates other settings. The cited references have different settings for one or two modes, but do not disclose the transmit level settings as user accessible options. Claims 16 and 17 are similar to claims 2 and 3 and are allowable for the same reasons. Claim 18 recites a configuration on a system for two different contrast agent detection techniques, but the cited references each disclose one technique to be used. Claim 22 recites altering transmit level without altering transmit sequence in response to further adjustment of a user input. The cited references provide different set levels for a single mode, not adjustment of transmit level in response to user input. Claim 28 recites a processor operable to obtain a measure and automatically select transmit sequence and level. The cited references do not

use a measure to select the sequence and level. The combination of sequences of claim 30 are not disclosed in the cited references.

CONCLUSION

Applicants respectfully submit that all of the pending claims are in condition for allowance and seeks early allowance thereof. If for any reason, the Examiner is unable to allow the application but believes that an interview would be helpful to resolve any issues, he is respectfully requested to call the undersigned at (650) 943-7350 or Craig Summerfield at (312) 321-4726.

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